

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claim 6 is now pending in this application.

In the outstanding Office Action, Claim 6 was rejected under 35 U.S.C. §103(a) as obvious over DE 3048303 A1 or Schultes, taken in view of Kessler. This rejection is respectfully traversed, as the Office has failed to state a prima facie case of obviousness.

Claim 6 is directed to a gas liquid contact plate. The plate comprises a plurality of straight rows of the contact plate, with irregularities formed over both surfaces of the contact plate at equal intervals to each respective row, such that adjacent rows have repeated irregularities opposite to each other. Further, the plate includes openings in a peak and valley portion of the repeated irregularities, with the openings connecting the front surface to the back surface between the adjacent rows. These openings cover an area of 10 to 20% of the contact plate. In the plate, the irregularities comprise continuously smooth sinusoidal wavy irregularities having a substantially opposite phase at the equal intervals.

Figure 2 shows a contact plate of the present application. Several adjacent straight rows are evident. In addition, each of the rows has repeated smooth sinusoidal wavy irregularities. Each of these rows is arranged such that the irregularities have a substantially opposite phase at equal intervals. Adjacent rows have repeated irregularities opposite to each other, with a substantially 180° phase difference between adjacent rows at equal intervals. The openings are formed by the gaps between adjacent opposite-phased irregularities, and the opposite-phased irregularities and the opening formed therebetween are at equal intervals to each other.

Schultes, U.S. Patent No. 5,885,694, discloses a packing element for mass transfer columns through which a gas or liquid flow. Schultes appears to disclose adjacent rows of sinusoidal irregularities, with the irregularities opposite to each other. However, as

acknowledged at the bottom of page 2 of the outstanding Office Action, Schultes does not disclose openings in a peak and valley portion of irregularities in which the openings connect the front surface to the back surface between the adjacent rows and covering an area of 10 to 20% of the contact plate. Figure 3 of the DE 3048303 A1 reference appears to disclose a similar structure, and likewise, does not disclose openings in a peak and valley portion of irregularities in which the openings connect the front surface to the back surface between the adjacent rows and covering an area of 10 to 20% of the contact plate, as also acknowledged at the bottom of page 2 of the outstanding Office Action.

Kessler discloses a packing column for gas and liquid exchange comprised of a foil-like material with adjacent concave and convex structure elements in an alternating arrangement. Kessler discloses openings in the form of regularly arranged apertures, but does not teach that the repeated irregularities comprise continuously smooth sinusoidal wavy irregularities having a substantially opposite phase at equal intervals. Nor does Kessler teach that the irregularities in adjacent rows are opposite to each other. Kessler teaches varying spacing between the centers of the apertures and varying distances between adjacent concave and convex structure, with a substantially 90° phase difference between the waves made up of the concave-convex curves.

Kessler teaches apertures in the foil-like material of between 10 and 50% of the total area of the foil. However, Kessler does not disclose or teach the desirability of this specific area. Kessler does not teach that its aperture area insures contact of all surfaces of the sheets with the liquid acted upon, as the Office avers in the outstanding Office Action. Nor does Kessler teach the advantages of optimizing the percentage of open area of the apertures within the contact plates. At best, Kessler teaches a very wide range of values for aperture area with no teaching whatsoever of a reason for such an area, and certainly no motivation or teaching suggesting selection of an area of 10-20% of the contact plate as in the present


invention. On the contrary, in the present application, Applicant has provided evidence of the unexpected advantage seen with a rate of hole area of 10-20% with its Declaration under 37 CFR 1.132 submitted September 28, 2004. This much smaller range, as compared to the 10-50% range, is not taught or suggested by Kessler or any of the other references.

The Office has simply provided no evidence of any motivation or suggestion to combine the 10-50% aperture area of the Kessler reference, with its 90° phase difference, with the other references to somehow result in the present invention with its substantially 180° phase difference between adjacent rows at equal intervals, in which openings in a peak and valley portion of irregularities connect the front surface to the back surface between the adjacent rows and cover an area of 10 to 20% of the contact plate. Because there is no suggestion to combine the Kessler reference with either of the Schultes or the DE 3048303 A1 references, Applicant respectfully submits that the Office has failed to state a prima facie case of obviousness. Accordingly, Applicant requests that this rejection be withdrawn and the claim allowed.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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